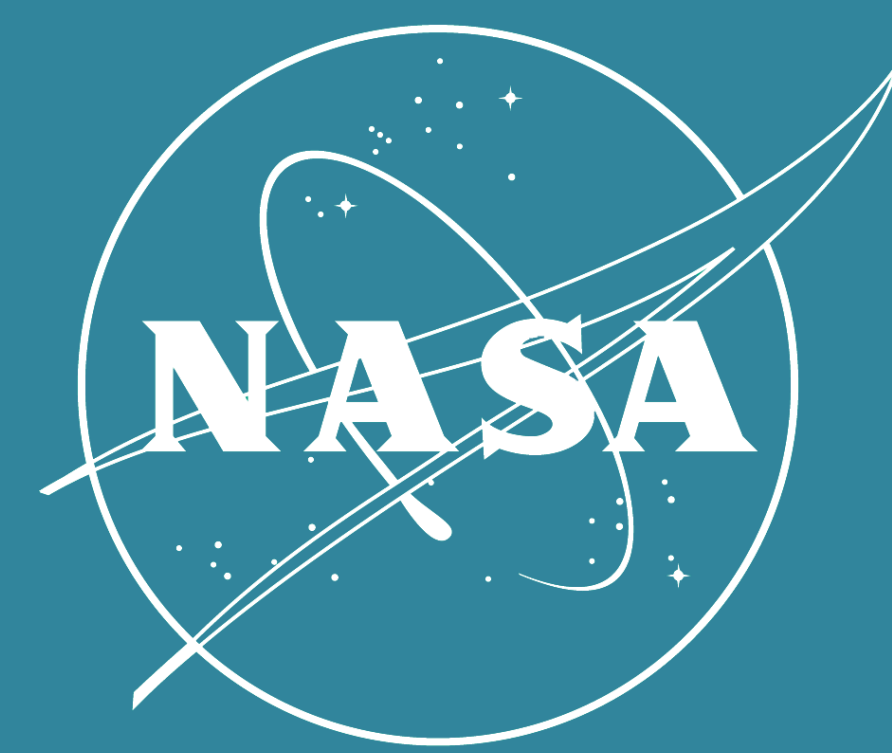


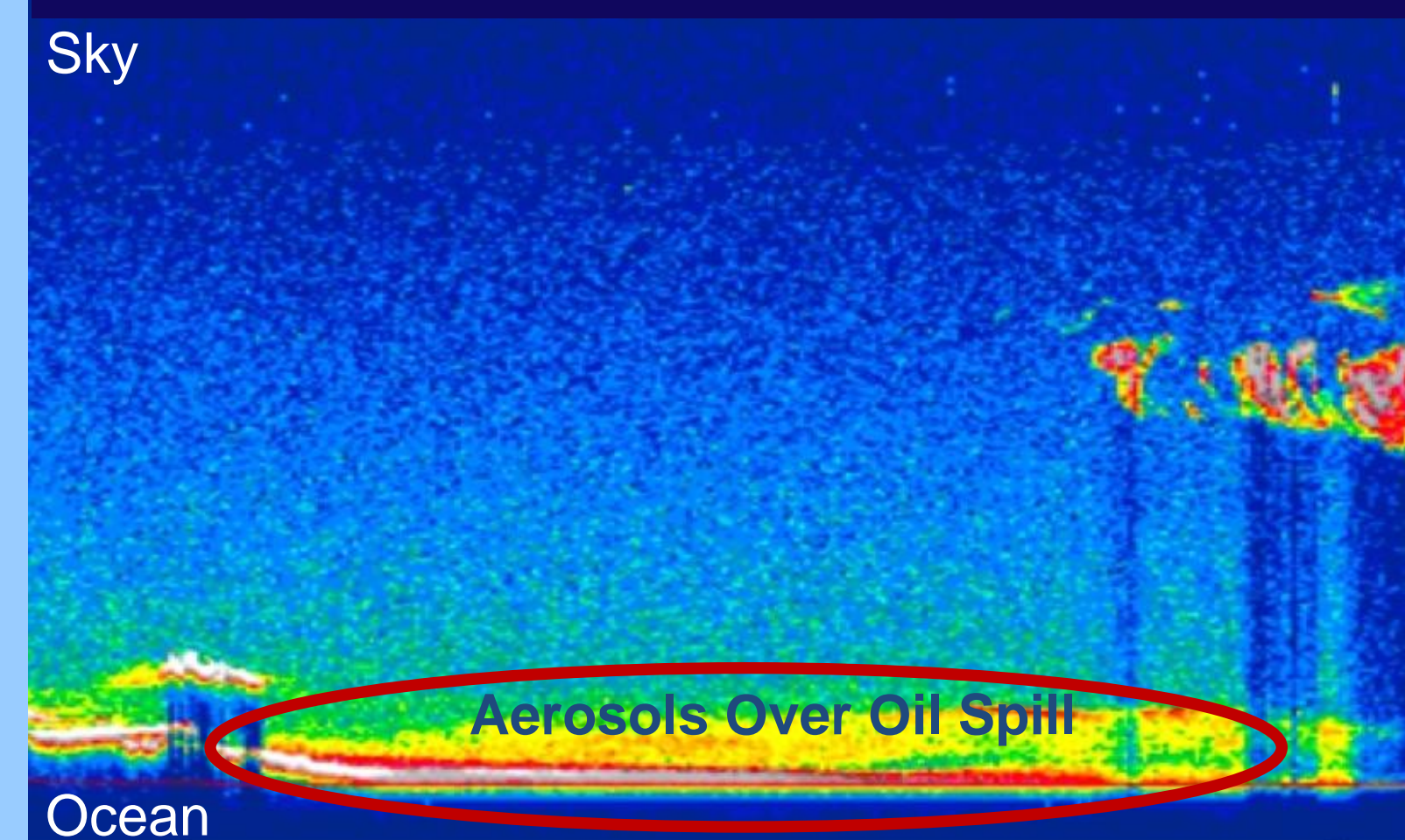
## DEVELOP National Program

# NASA Earth Observations Track the Gulf Oil Spill

To provide useful tools for responders and a better understanding of environmental impacts, NASA and its research partners contributed numerous satellite and airborne data products in the wake of the *Deepwater Horizon* oil spill.

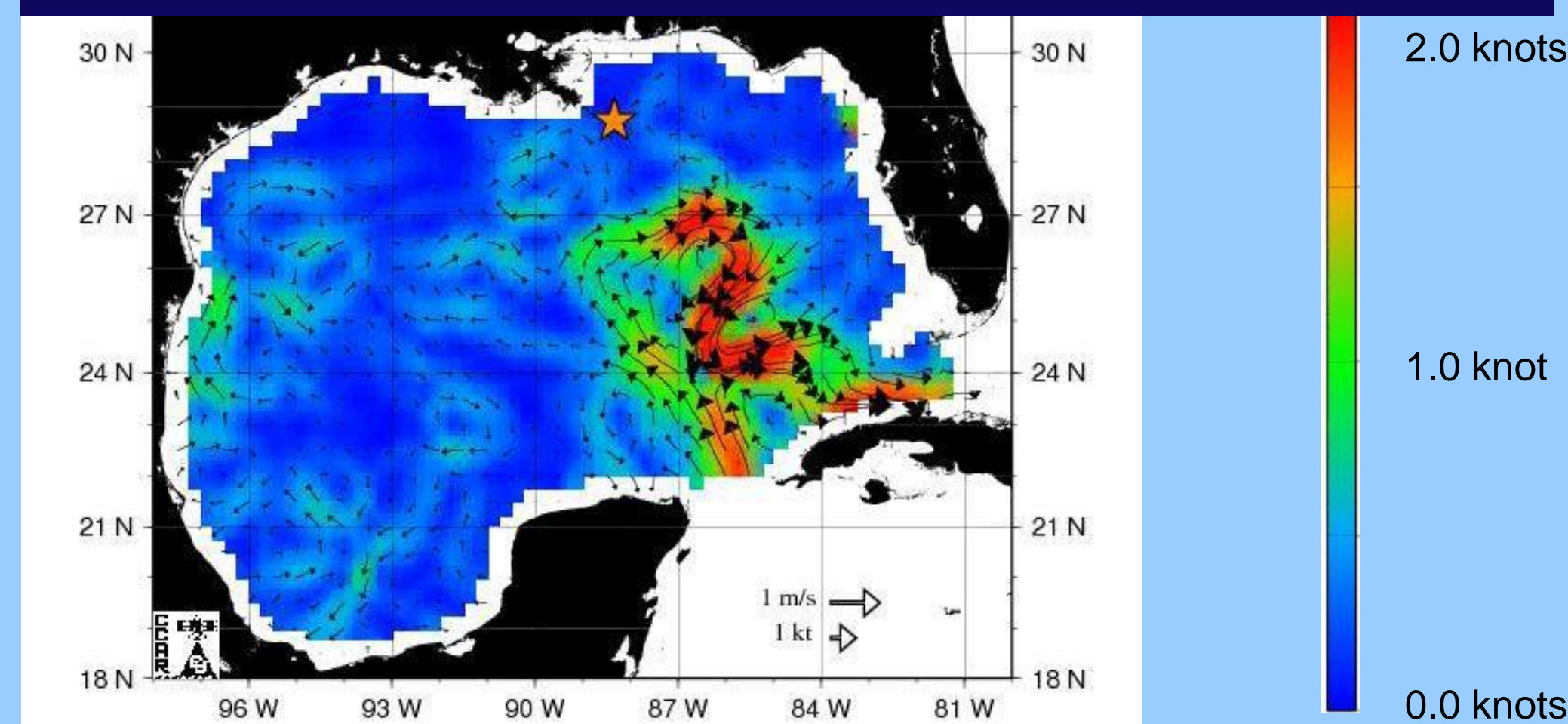


### CALIPSO (CALIOP)



This graphic depicts a vertical cross-section view of aerosols over the *Deepwater Horizon* oil spill on May 2, 2010, from the Cloud-Aerosol Lidar with Orthogonal Polarization sensor (CALIOP) onboard NASA's *Cloud-Aerosol Lidar and Infrared Pathfinder Satellite Observations* satellite (CALIPSO). The red oval indicates the approximate location of aerosols over the spill.

### JASON-1 and OSTM / JASON-2

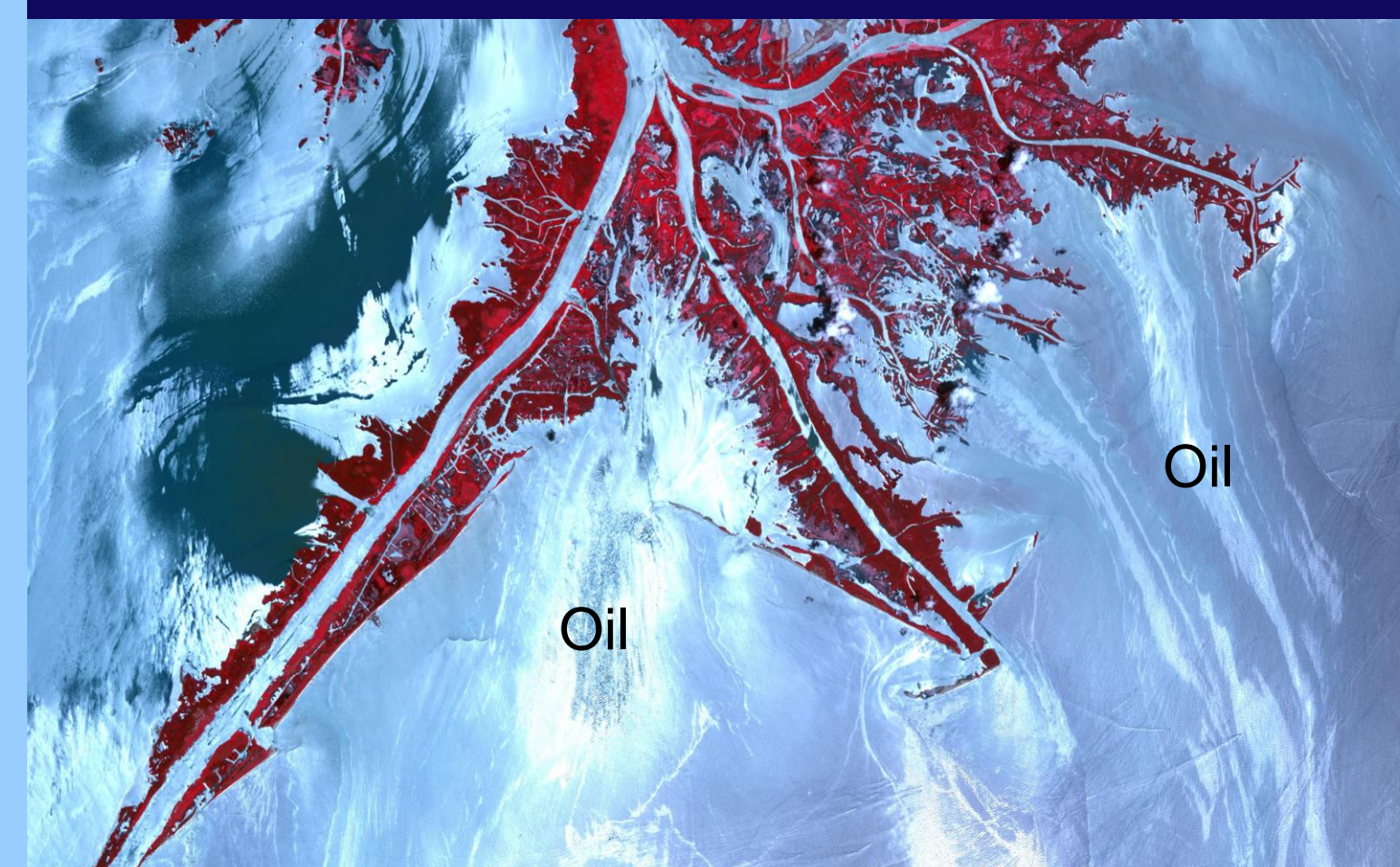


This image, created on May 23, 2010, using measurements of sea surface height from multiple satellites, including *Jason-1* and *OSTM/Jason-2*, shows the speed and direction of surface currents in the Gulf of Mexico. The star shows the former location of the *Deepwater Horizon* drilling rig. The color bar on the right indicates sea surface current velocity in knots.

Image credit: Colorado Center for Astrodynamics Research in Boulder, Colorado.

Text credit: NASA.

### TERRA (ASTER)

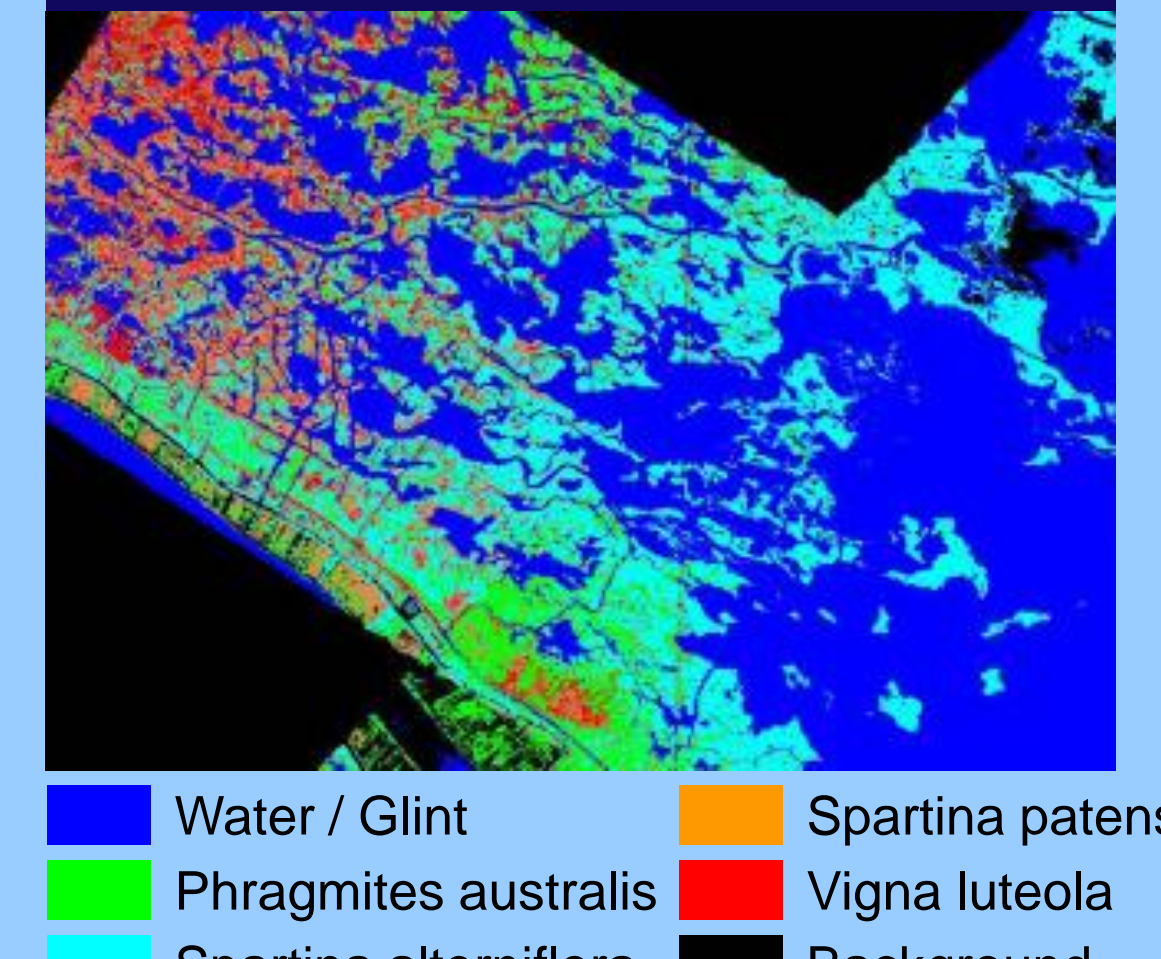


Oil from the *Deepwater Horizon* spill laps around the mouth of the Mississippi River delta in this May 24, 2010, image from the Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) instrument on NASA's *Terra* spacecraft. The oil appears silver; while vegetation appears red.

Image credit: Jesse Allen/NASA/GSFC/METI/ERSDAC/JAROS, and U.S./Japan ASTER Science Team.

Text credit: NASA

### ER-2 (AVIRIS)



Wetlands vegetation species map generated from 16-meter resolution AVIRIS imagery acquired over southeast Louisiana on May 6, 2010.

Image Credit: Dr. Dar A. Roberts et al., UCSB

Text credit: NASA DEVELOP

### B200 KING AIR (HSRL)

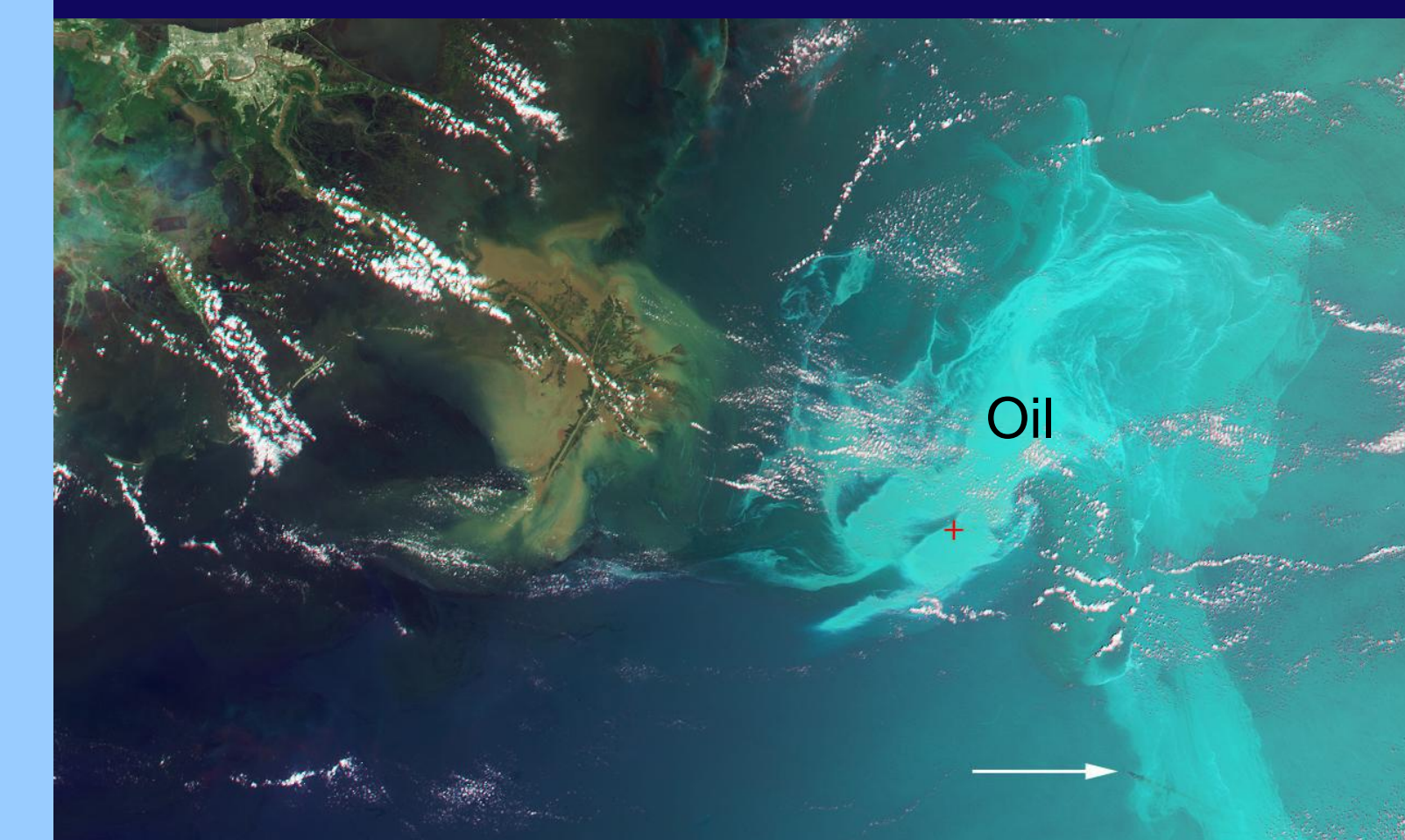


The Gulf oil slick is visible as a bright diagonal swath in this image taken from 28,000 feet with a camera mounted on Langley's B-200 King Air research airplane during a May 10-11 data collection mission.

Image credit: NASA.

Text credit: NASA

### TERRA (MISR)



May 17, 2010, false-color image of the Gulf of Mexico oil spill, created by combining data from different color bands on two of MISR's nine cameras.

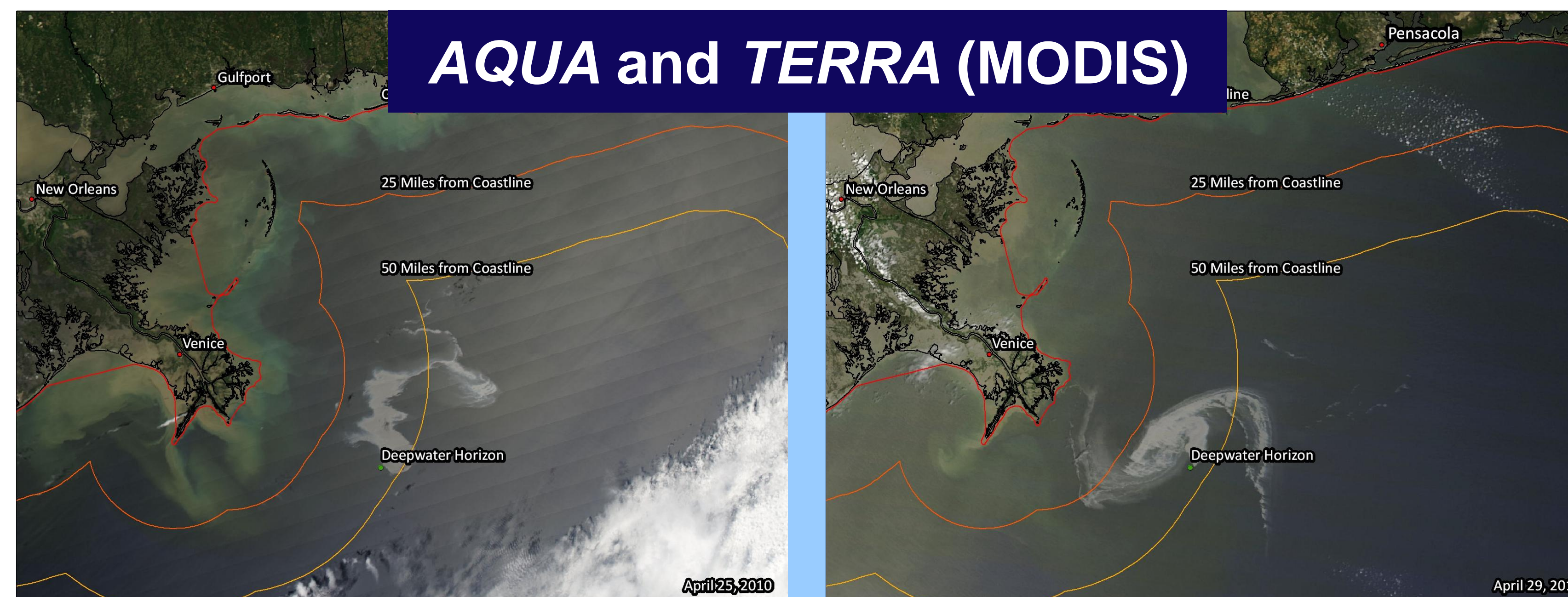
Image credit: NASA/GSFC/LaRC/JPL, MISR Team.

Text credit: NASA.

## NASA'S APPLIED SCIENCES PROGRAM

The Applied Sciences Program supports the Earth Science Division (ESD) within the NASA Science Mission Directorate (SMD). The overarching purpose of the Program is to discover and demonstrate innovative uses and practical benefits of NASA Earth science data, scientific knowledge, and technology. The Applied Sciences Program serves as a bridge between the data and knowledge generated by NASA Earth Science and the information and decision-making needs of public and private organizations. To this end, the Program increases the benefits to society from the nation's important investments in NASA Earth Science.

## AQUA and TERRA (MODIS)



*Aqua* MODIS Image: Gulf water surface April 25, 2010. Oil shown in gray shades.

*Terra* MODIS Image: Gulf water surface April 29, 2010. Oil shown in gray shades.

MODIS Imagery Credit: NASA/GSFC, MODIS Rapid Response.

Cartography by: Jason Jones, DEVELOP National Program, Stennis Space Center.

Graphics produced in partnership with students at the Mobile County Health Department, Mobile, Alabama, and NASA Langley Research Center, Hampton, Virginia.

## ISS (ASTRONAUT PHOTOGRAPHY)



Oil Slick Photographed from International Space Station on May 4, 2010

This detailed astronaut photograph from May 4 provides a different viewing perspective on the ongoing event. The image is oblique, meaning that it was taken from a sideways viewing angle from the International Space Station (ISS), rather than from a "straight down" (or nadir) view, which is typical of automated satellite sensors. The view in this image is toward the west.

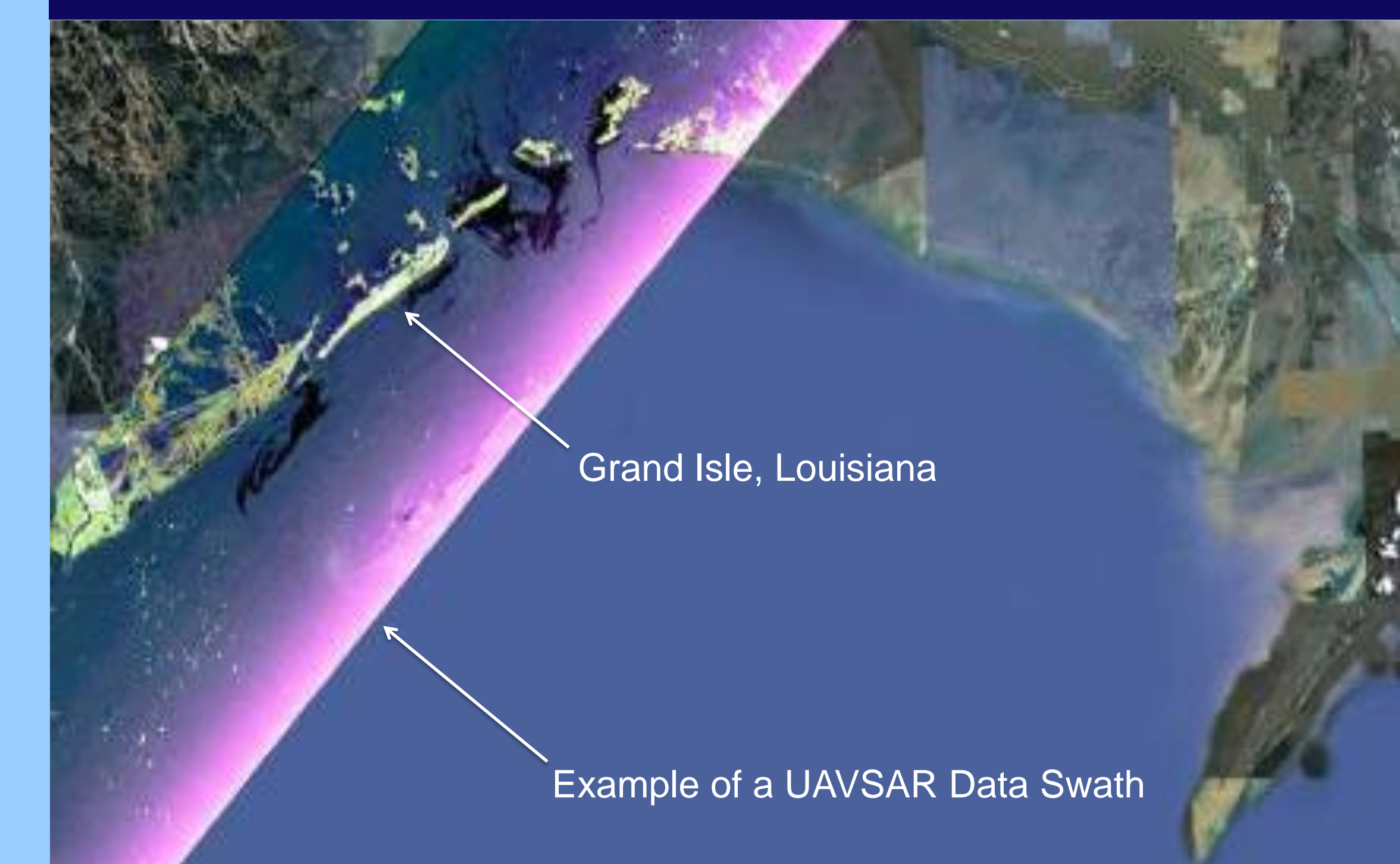
Image credit: NASA

Text credit: <http://earthobservatory.nasa.gov>

## STUDENT INVOLVEMENT

NASA has also been instrumental in involving students in oil spill remote sensing work. Interns with the DEVELOP National Program, part of NASA's Applied Sciences Program, have been studying the Gulf oil spill using many of NASA's satellite and airborne sensors. DEVELOP is a training and development program extending NASA Earth science research and technology to society. The program fosters a high-quality corps of early career researchers possessing advanced skills in NASA Earth science research applications and partner agencies' decision support tools, as well as experience delivering results to officials in government, academia, and industry. DEVELOP students initiated a public outreach campaign along the Gulf Coast to increase public awareness of NASA's contributions to oil spill response efforts and promote the practical benefits of NASA Earth science data.

## GULFSTREAM-III (UAVSAR)



UAVSAR Maps the Gulf Coast Oil Spill

NASA's Uninhabited Aerial Vehicle Synthetic Aperture Radar (UAVSAR) flew over the Gulf of Mexico to image the *Deepwater Horizon* oil spill on June 22-23, 2010. The airborne radar, built and managed by NASA's Jet Propulsion Laboratory, Pasadena, California, currently flies aboard NASA's Gulfstream-III aircraft from NASA's Dryden Flight Research Center, Edwards, California.

For more information on UAVSAR, visit <http://uavsar.jpl.nasa.gov/>.

Image Credit: NASA/JPL--Google

## KEY WEBSITES

NASA's Applied Sciences Program:  
[appliedsciences.nasa.gov/](http://appliedsciences.nasa.gov/)

NASA's Applied Sciences Program Gulf of Mexico Initiative:  
[www.coastal.ssc.nasa.gov/](http://www.coastal.ssc.nasa.gov/)

DEVELOP National Program:  
[develop.larc.nasa.gov/](http://develop.larc.nasa.gov/)